

S/196/62/000/003/010/012
E194/E155

AUTHOR: Ivenskiy, Yu.N.

TITLE: The design of control circuits with contactless elements

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no.3, 1962, 1, abstract 3 K3. (Vestn. elektroprom-sti, no.8, 1961, 41-44).

TEXT: Relay-contact control circuits are reduced to a certain combination of nodes that fulfil the logical operations 'And', 'Or', 'No', 'Prohibited', 'Memory' and 'Time delay'. Reliable contactless control systems of long life may be constructed on the basis of contactless stepwise switching elements having the above-mentioned logical relationships between the input and output signals. The special features of these control systems must be allowed for in designing them: switching is not ideal, i.e. there is interference; the elements have many inputs and one output; and it is necessary to amplify the output signal to work the operating devices. The construction of

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The design of control circuits ...

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optimum contactless control systems is facilitated by using the laws of mathematical logic. Examples are given of desirable conversion in the typical relay-contact nodes and in nodes of contactless control systems. Two examples are given of construction of contactless control systems for machine tool drive.
6 figures.



[Abstractor's notes: Complete translation.]

Card 2/2

IVENSKIY, Yu.N., inzh.; TULLER, A.G., inzh.

Electric equipment for production lines composed of machine-tool
units. Mekh.i avtom.proizv. 15 no.10:39-45 0 '61.

(MIRA 14:10)

(Machine tools) (Electronic control)

IVENSKIY, Yu.N., inzh.; TULLER, A.G., inzh.

Control networks using weak-current devices. Vest. elektroprom.

32 no.4:52-56 Ap '61.

(MIRA 15:5)

(Electric networks)

S/876/62/000/000/002/007
E191/E481

AUTHOR: Ivenskiy, Yu.N.

TITLE: Problems in the design of control circuits and components for automated machining production lines (Experience of SKB-8)

SOURCE: Proyektirovaniye i ekspluatatsiya avtomaticheskikh liniy mekhanicheskoy obrabotki. Mosk. dom nauchno-tekhn. prop. Ed. by A.P. Vladziyevskiy. Moscow, Mashgiz, 1962. 68-87

TEXT: Designs adopted as a result of experience with electrical control systems for automatic production lines are described and their reasons discussed. The primary criteria are the reliability and endurance of the system. Communication engineering components in low voltage systems are preferred to medium voltage contactor systems. The advantages of low voltage systems can only be retained by paying full attention to their special requirements. The power supply unit is a three-phase transformer with rectifiers in a bridge arrangement having a low ripple factor and ensuring that the effect of filtering and spark suppression circuits on the supply voltage fluctuations is small.

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Problems in the design ...

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Protective devices based on maximum current and thermal protection are discussed. Detailed examples are given of control circuits based on time delay elements embodying RC circuits. One example is the control of a turntable used in standard unit type and specialized machine tools. Another example is an automatic production line wherein the machine tools consist of several detachable units. In this control scheme, relays signalling the initial position are used. The coil circuit of such relays contains the series contacts of limit switches which detect the initial position of the elements. The central control panel of such a production line is illustrated. The presence or absence of a hole sometimes forms a necessary element of detection in the control system. In the case of small holes, such inspection is accomplished by establishing that the drill is unbroken after drilling. The inspection is performed by a special feeler. The use of semiconductor amplifiers is described. The control of time delays is performed by means of a transistorized time relay operated by contactless logical elements. Voltage and temperature fluctuations have only a small effect. Details of installation design are discussed. There are 12 figures.
Card 2/2

IVENSKIY, Yu.N., inzh.; TULLER, A.G., inzh.; EL'PER, G.L., inzh.

Elements of computing circuits in the control of continuous lines.
Vest. elektroprom. 33 no.3:61-66 Mr '62. (MIRA 15:3)
(Automatic control)

IVENSKIY, Yu.N.; TULLER, A.G.; EL'PER, G.L.

Selecting current-supply sources for control circuits with
wire communication equipment. Stan.1 instr. 33 no.5:24-26
My '62. (MIRA 15:5)
(Electronic control)

IVENSKIY, Yu.N.; TULLER, A.G.; EL'FER, G.L.

Protection systems for control circuits and supply sources. Stan.i
instr. 33 no.7:5-9 J1 '62. (MIRA 15:7)
(Electric protection)

IVENSKIY, Yu.N., inzh. (Minsk); TULLER, A.G., inzh. (Minsk)

Electrical systems for the control of the continuous lines of
machine tools. Elektrichestvo no.4:32-39 Ap '63. (MIRA 16:5)
(Automatic control) (Assembly line methods)

IVENSKIY, Yu.N.; TULLER, A.G.; GEYLER, L.B., doktor tekhn. nauk,
prof., retsenzent; KHARIZOMENOV, I.V., doktor tekhn.
nauk, prof., red

[Electric control of machine tool lines] Elektroavtomatika
stanochnykh linii. Moskva, Izd-vo "Mashinostroenie," 1964.
324 p. (MIRA 17:4)

IVENSKIY, Yu.N.; TULLER, A.G.; EL'PER, G.L.

Counting circuits in the control of machine tools and automatic
lines. Stan. i instr. 34 no.11:7-10 N '63. (MIRA 16:12)

IVENSKIY, Yu.N., inzh.; POPLAVSKIY, V.S., inzh.

Monitoring and signaling system for automatic control of machine
tools and lines. Mekh. i avtom. proizv. 19 no.7:39-43 J1 '65.
(MIRA 18:9)

IVENSKIY, Yu.N., inzh.; LEYMAN, A.A., inzh.; GOTOVSKIY, A.S., inzh.

Calculation and design of generator-type contactless track
switches. Elektrotehnika 36 no.4:20-23 Ap '65.

(MIRA 18:5)

Ivenson, V.I.

Laws governing deformations.

Title: Seminar on refractory metals, compounds, and alloys (Kiev, April 1963).

Source: Atomnaya energiya, v. 15, no. 3, 1963, 266-267

IVERNOVA. M.I.

Mudflows in the Issyk-Kul' Basin and its surrounding mountains. Rub.
Tian'.-Shan'.vysokogor. fiz.-geog. sta. no.7:55-80 '64. (MIRA 17:12)

IVERONOVA, M.I.

IVERONOVA, M.I., AVSTUK, G.A., GLAZOVSKAYA, M.A., KALETSKAYA, E.S.,
KUTNETSOV, V.M., KATVEYEV, S.F.

"Geomorphological chart to scale of 1: 1,000,000"

Inst. Geography, AS USSR Referaty OZK p. 109, 1944.

IVERONOVA, M. I.

"The Arrangement of Works on the Study of Drift and Sedimentation, in the Tien-Shan Station of the Inst. of Geography, AS USSR," Problemy Fizicheskoy Geografii (Problems of Physical Geography), Vol. 16, Symposium, Moscow, 1951.

U-1483, 25 Sept 51

IVERCHOVA, M. I.

Moraines - Tien Shan

Processes of the formation of recent moraines in Tien Shan.
Trudy Inst. geog. AN SSSR no. 49, 1952

T'ien-shan Physico Geographical Station, Inst. Geog. AN USSR

9. Monthly List of Russian Accessions, Library of Congress, November 1955, 2 Uncl.

IVERONOVA, M.I.

SHUL'TS, V.L. [author]; KUNIN, V.N.; IVERONOVA, M.I. [reviewers].

"Melting of snowflakes (exemplified in the Bol'shoy Chingan region)." V.L. Shul'ts. Reviewed by M.I. Iveronova and V.N. Kunin. Izv. AN SSSR Ser. geog. no. 4:106-108 J1-Ag '53. (KLEA 6.8)
(Bol'shoy Chingan region--Snow) (Snow--Bol'shoy Chingan region)

IVERONOVA, M.I.

Movement of talus (Data on the station's investigation of the
movement of talus into the Chon-Kyzyl-Su Valley. Trudy Inst.
geog. no.60:5-44 '54. (MLRA 8:5)
(Chon-Kyzyl-Su Valley—Landslides) (Landslides—Chon-
Kyzyl-Su Valley)

IVERONOVA, M.I.

Some regularities of the distribution and conditions of snow cover
in the forest-meadow-steppe zone of the Terskei Ala-Tau slopes.
Trudy Inst.geog.no.67:11-36 '56. (MLRA 9:9)
(Terskei Ala-Tau--Snow)

IVERONOVA, M.I.; AVSYUK, G.A., prof., otvetstvennyy red.; PAVLOVA, Ye.P., red.

[Observations on modern exogeneous geomorphologic processes in a
glacial zone] Naблиudeniia nad sovremennymi ekzogennymi
geomorfologicheskimi protsessami v lednikovoï zone, Moskva, 1957.
p.25. (Osnovnye metodicheskie ukazaniia po gliatsiologicheskim Issle-
dovaniiam, no.12) (MIRA 11:7)

(Glaciers)

IVERONOVA, M.I.

Accumulation and thawing of snow on glaciers as illustrated
by one of the Terskey Ala-Tau glaciers. Osn.metod.nkaz.po gliats.
issl. no.15:21-30 '57. (MIRA 12:1)
(Terskey Ala-Tau--Snow)

10-58-2-1/30

AUTHORS: Avsyuk, G.A., Gal'tsov, A.P.; Iveronova, M.I.; Meshcheryakov, Yu.A.

TITLE: At the XIth General Assembly in Toronto of the International Union of Geodesy and Geophysics (IUGG) (Na XI general'noy assambleye mezhdunarodnogo soyuza geodezii i geofiziki (IUGG) v Toronto)

PERIODICAL: Izvestiya Akademii nauk SSSR - Seriya geograficheskaya, 1958, Nr 2, pp 3-8 (USSR)

ABSTRACT: The XIth General Assembly of the International Union of Geodesy and Geophysics convened in Toronto from 3 to 14 September, 1957. The USSR was represented by a delegation consisting of 54 scientists headed by Academician I.P. Bardin. The Soviet geographers G.A. Avsyuk, A.P. Gal'tsov, M.I. Iveronova and Yu.A. Meshcheryakov participated for the first time in a meeting of the Union. The conference was divided into various sections dealing with special fields. The conference heard the following Soviet reports: The Geodesists M.S. Molodenskiy, A.A. Izotov, Yu.D. Bulanzhe and M.I. Sinyagina on the achievements of Soviet science in the geodesy; V.V. Belousov, V.A. Magnitskiy, Ye.A. Lyubimova, V.I. Keylis-Borok and Yu.V. Reznichenko on seismological problems and questions concerning the physical structure of the Earth's deposits; G.A. Avsyuk on glacial research work

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10-58-2-1/30

At the XIth General Assembly in Toronto of the International Union of Geodesy and Geophysics (IUGG)

carried out in the USSR; A.M. Obukhov and A.S. Monin on meteorological questions, especially diffusion and convection. Special attention was paid to the reports of the Soviet scientists M.I. Sinyaginaya and Yu.A. Meshcheryakov on the study of present movements of the Earth crust in the European part of the USSR. M.I. Budyko dealt with the distribution of the components of the thermal balance of the Earth's surface. This report met with especially great interest since only the USSR has succeeded in preparing monthly charts on the components of the thermal balance all over the world, and what is even more important, in solving the problem of determining the evaporation taking place on the surface of dry land. Ye.P. Tolstik explorer of polar regions reported on Soviet research in the Arctic and Antarctic Zones within the International Geophysical Year. Due to the Soviet achievements in all these fields of science V.V. Belousov, Corresponding Member of the AS, USSR was elected Vice-President of the

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10-58-2-1/30

At the XIth General Assembly in Toronto of the International Union of Geodesy and Geophysics (IUGG)

of the International Union of Geodesy and Geophysics.

1. Geodesy and Geophysics—Conference

Card 3/3

IVERONOVA, M.I.

Certain observation results on the distribution of snow cover
in the Tien Shan Mountains; Terksei Ala-Tau Range, Chung-Kayl-Su
River basin. Trudy Tbil. NIGMI no.3:25-30 '58. (MIBA 11:10)

1. Institut geografii AN SSSR.
(Tien Shan--Snow)

IVERONOVA, M.I.

Movement of the loose surface material on the turfy mountain slopes
in the fores-meadow-steppes belt of the northern Tien Shan. Trudy
Inst. geog. 75:26-50 '59. (MIRA 13:12)
(Tien Shan—Geology, Structural)

SOV/10-59-3-27/32

AUTHORS: Geller, S.Yu., Avsyuk, G.A., Iveronova, M.I., Neyshadt, M.
I., Preobrazhenskiy, V.S., Rantsman, Ye.Ya., Sobolev, L.N.,
Rozin, M.S.

TITLE: Book Reviews

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geograficheskaya, 1959,
Nr 3, pp 142-148 (USSR)

ABSTRACT: Five new books are reviewed with a short description of each.

Card 1/1

IVERONOVA, M. I.

Surface runoff of rain and snow waters on the mountain slopes
of the Terskey Ala-Tau. Izv. AN SSSR. Ser. geog. no. 4:93-98
Jl-Ag '60. (MIRA 13:7)

1. Institut geografii AN SSSR.
(Chong-Kyzylsu Valley (Terskey Ala-Tau) -- Runoff

S/188/60/000/004/017/018/XX
B006/B067

AUTHORS: Grayevskaya, Ya. I., Iveronova, V. I., Tarasova, V. P.

TITLE: The Dependence of the Characteristic Temperature Determined
by X-Ray Analysis on the Tin Concentration in Solid Cu-Sn
Solutions 17 — 17

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika,
astronomiya, 1960, No. 4, pp. 52 - 58

TEXT: The authors report on measurements of the characteristic temperature θ_p in Cu-Sn alloys within a wide concentration range. These alloys were chosen because their modulus of elasticity ΔE varies considerably with concentration ($\Delta E/\Delta C = 500 \text{ kg/mm}^2$ per at% Sn). The characteristic temperatures were determined by X-ray analysis from the intensity ratios of the CuK(133) line at room temperature and at -196°C . For these measurements the authors chose copper-tin alloys in the α -phase with 2.35 at% tin (2 samples), 4.73 at% (2 samples), and 7.1 at% Sn (3 samples). The samples were produced from electrolytic copper and high-
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The Dependence of the Characteristic
Temperature Determined by X-Ray Analysis on
the Tin Concentration in Solid Cu-Sn Solutions

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purity tin, and were annealed for 24 - 48 hours at about 50°C. The degree of homogeneity was determined from the distinctness of the (133-024) doublet of X-ray powder patterns. A Geiger counter was used for the measurements. A curved quartz crystal served as a monochromator. The intensity of the monochromatic beam was checked by a monitor counter. Fig. 1 illustrates the concentration dependence of θ_p . With increasing

tin concentration, θ_p rapidly decreases. The same holds for the quantity $m\theta_p^2$ which is proportional to the modulus of elasticity of the binding forces of the atoms (Fig. 2). θ_p and E are connected by the relation

$$\theta = \frac{h\sqrt{3}}{k} \left(\frac{3N}{4\pi} \right)^{1/3} \frac{E^{1/2}}{M^{1/3} q^{1/6} f^{1/2}(\sigma)} \quad (h - \text{Planck's constant, } k - \text{Boltzmann constant, } N - \text{Avogadro constant, } M - \text{atomic weight, } q - \text{density, } f(\sigma) - \text{function of the Poisson ratio}).$$

At low tin concentrations, also the

relation $\theta = K\sqrt{E}$ may be used, which leads to $\frac{\Delta\theta_p}{\Delta\theta_p} = \frac{1}{2} \frac{\Delta E}{\Delta E} \approx 2.0 \cdot 10^{-2}$ or

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IVERONOVA, M.I., otv. red.; BIRINA, A.V., red. izd-va; VOLKOVA, V.G.,
tekhn. red.

[Role of the snow cover in natural processes; on G.D.Rikhter's
60th birthday] Rol' snezhnogo pokrova v prirodnykh protsessakh; k
60-letiiu so dnia rozhdeniia G.D.Rikhtera. Moskva, Izd-vo Akad.
nauk SSSR, 1961. 270 p. (MIRA 14:11)

1. Akademiya nauk SSSR. Institut geografii.
(Snow) (Rikhter, Gavril Dmitrievich, 1899-)

S/169/62/000/007/122/149
D228/D307

AUTHOR: Iveronova, M. I.

TITLE: Question of evaporation from the snow cover on the USSR's territory

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 63, abstract 7V370 (Rol' snezhn. pokrova v prirod. protsessakh, M., AN SSSR, 1961, 36-53)

TEXT: It is shown that the empirical formula $E = (0.0075 + 0.0041 U_{1000}) (l_n - l_{200})$ allows the values of winter evaporation from snow to be calculated from the data of meteorologic network observations with a precision sufficient for determining its role in the water balance of a given territory. In this formula E is the magnitude of evaporation from snow in mm/hr; l_n is the maximum water-vapor tension in mb, determined from the snow surface's temperature; l_{200} is the air's absolute humidity in mb at a level 2 m from

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Question of evaporation ...

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the ground surface; and U_{1000} is the wind velocity in m/sec at a level of 10 m (at the wind vane height). These calculations, however, have yet to be done; they are laborious and require much time. The author recommends that the question of zoning a territory according to the value of evaporation from the snow cover should be approached as follows. Areas should be distinguished where the total magnitude of evaporation in the winter season comprises a value that is in the range of the accuracy of accounting for the maximum-water reserves, which have accumulated in the snow cover, and hence merits no special attention. Then areas should be distinguished in which all components of the water balance and the winter evaporation in particular have to be strictly taken into account. Having assumed that the possible average for winter evaporation is 25 mm, the author demonstrates that its role in the water balance will have the least significance for those of the Soviet Union's territories, which are characterized by maximum water reserves of about 150 mm and more in the snow cover or by winters with much snow, having a maximum mean 10-day snow-cover depth

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Question of evaporation ...

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of more than 50 cm. In this case the overall magnitude of evaporation from the snow surface will lie in a range in which the snow cover's water reserve can be accurately calculated from snow surveys. The climatic zoning of the USSR carried out by A. A. Grigor'yev and M. I. Budyko was used to zone the USSR according to the specific value of evaporation in the water balance of its separate territories. The author also enlisted G. D. Rikhter's data on the zoning and the characteristic of the snow cover regime on the USSR's territory. 6 areas were distinguished on the accompanying scheme. Area I includes territory with an unstable snow cover; in the water balance the role of evaporation from the snow cover's surface is small. Territories where the winter has much snow belong to Area II. Here the role of evaporation is slight, too, since its overall winter value amounts to less than 20% of the snow cover's water reserves and thus lies in the range in which these can be accurately calculated. Territories having winters with much snow and excessively wet climates, belong to Area III. Here the strict calculation of relatively small expenditures of the water balance's items can be of no great significance. Area IV includes

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Question of evaporation....

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territories with little snow, though they are located in the zone of sufficiently wet climate. Territories situated in the dry climatic zone, belong to Area V; in them the role of winter evaporation is small. The author reckons that evaporation from the snow cover is highly significant in Area IV and V, and that it has to be considered in each kind of calculation for the water economy and the hydrology. Mountain regions belong to Area VI. Here the loss of snow in evaporation is significant only for mountain regions with little snow (Armyanskoye Highlands, the east part of the Glavnyy Kavkazskiy Range, E. Tyan'-Shan', E. Pamirs). The estimation of the magnitude of evaporation from the snow cover acquires special interest in the period of thaw, since this quantity is usually not taken into account from the moment of determining the maximum water reserves up to the snow cover's disappearance. It is supposed that the type of spring above all determines whether the process of evaporation from snow, or the process of condensation on the surface, predominates in the period of thaw. Evaporation should prevail throughout springs of the radiation type. Conditions for the development of this process are unfavorable when there are

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Question of evaporation ...

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springs of the advective type. In most cases the maximum magnitude of evaporation during the thaw varies from 0.4 to 1.0 mm/day on the USSR's territory. The average magnitude of evaporation in the period of thaw varies from 0.10 to 1.08 mm/day, comprising on an average 0.4 mm/day. If the duration of the snow cover's period of thaw is taken as 20 - 25 days, the magnitude of evaporation for this period will comprise 8 - 10 mm. 38 references. [Abstracter's note: Complete translation.] ✓

Card 5/5

IVERONOVA, M.I.

Evaporation from the snow cover on the Terskei Ala-Tau Range in
the winter of 1958/59. Meteor. i gidrol. no. 2: 24-25 F '61.

(MIRA 14:1)

(Terskei Ala-Tau-Snow) (Evaporation)

IVERONOVA, M. I.

Relief-forming role of snow avalanches in the Terskey Ala-~~tau~~ Range.
Izv. AN SSSR. Ser. geog. no. 3:50-55 My-Je '61. (MIRA 14:5)

1. Institut geografii AN SSSR.
(Terskey Ala-Tau--Avalanches)

IVERONOVA, M.I.

Snow evaporators. Trudy Tbil.NIGMI no.9:185-190 '61. (MIRA 15:3)

1. Institut geografii AN SSSR.
(Snow) (Evaporation)

IVERONOVA, M.I.

Seismic mudflows of northern Tien Shan. Izv. AN SSSR. Ser. geog.
no. 4462-64 JI-Ag '62. (MIRA 16:5)

1. Institut geografii AN SSSR.
(Tien Shan--Landslides) (Tien Shan--Earthquakes)

IVERONOVA, M.I.

Midflows in the Chong-Aksu Valley. Izv. AN Kir. SSR. Ser. est. i tekhn.
nauk 4 no.4:79-84 '62. (MIRA 16:4)
(Chong-Aksu Valley--Runoff)

IVERONOVA, M.I.

Behavior of temporary runoff in the marginal mountains of the
Issyk-Kul' depression. Trudy Inst.geog. 81:30-58 '62.

(MIRA 16:2)

(Issyk-Kul' region—Runoff)

IVERONOVA, M.I.

Avalanche region and its hydrological and geomorphological
significance in the Terskei Ala-Tau. Trudy Inst.geog.

81:59-72 '62.

(MIRA 16:2)

(Terskei Ala-Tau--Avalanches)

IVERONOVA, M.I., kand.geograf,nauk

Snow avalanches as relief producers. Priroda 51 no.7:109-111 J1
'02. (MIRA 15:9)

1. Institut geografii AN SSSR, Moskva.
(Soviet Central Asia—Avalanches)

IVERONOVA, M.I.

Recent activity of temporary streams in the high mountains of the Issyk-Kul' region; results of stationary research. Izv. AN SSSR. Ser.geog. no.1:67-72 Ja-P '63. (MIRA 16:2)

1. Institut geografii AN SSSR.
(Issyk-Kul' region—Runoff)

IVERONOVA, M.I.

Characteristics of slope denudation in the northern Tien-Shan.
Izv. AN SSSR. Ser. geog. no.3:71-76 My-Je '63. (MIRA 16:8)

1. Institut geografii AN SSSR.
(Terskei Ala-Tau--Erosion)

SHCHEGLOVA, O. P., kand. fiz.-matem. nauk; LUT, B. F.; MECHITOV, I. I.,
kand. tekhn. nauk (Tbilisi); IVERONOVA, I. M., kand. geograf.
nauk (Moskva); IOGANSON, V. Ye. (Moskva); LARIONOV, P. M.
(Uzhgorod)

Mud torrents. Prioroda 52 no.1:90-96 '63. (MIRA 16:1)

1. Tashkentskiy gosudarstvennyy universitet im. V. I. Lenina
for Shcheglova). 2. Baykal'skaya limnologicheskaya stantsiya,
poselok Listvenichnoye, Irkutskaya obl. (for Lut).

(Runoff) (Erosion)

IVERONOVA, M.I.

Slow movement of soil masses on turf-covered slopes. Izv. AN SSSR.
Ser. geog. no.1:62-73 Ja-F '64. (MIRA 17:3)

1. Institut geografii AN SSSR.

IVERONOVA, M. I.

"The hydrological role of snow avalanches."

report to be presented at Intl Symp on Scientific Aspects of Snow and Ice
Avalanches, Davos, Switzerland, 5 Apr-11 Apr 65.

EVERCNOVA, M.I.

Silt load and the rate of erosion. Izv. AN SSSR. Ser. geog. no.4:81-
86. 11-Ag '65. (MIRA 18:8)

1. Institut geografii AN SSSR.

IVERONOVA, K.A.

Hydrologic role of avalanches. Trudy TbilNIGMI no.13:64-67 '63.

(MIRA 18:8)

1. Institut geografii AN SSSR.

IVERONOVA, M.I.

International Symposium on the Scientific Aspects of Ice
and Snow Avalanches. Izv. AN SSSR. Ser. geog. no.6:128-130
N-D '65. (MIRA 18:11)

15 NOV 61.
941594

Fizicheskiy praktikum
Moscow, 1951
614 p.

Physics textbook for government universities and pedagogical institutes dealing with mechanics, molecular physics, electricity, optics, etc; published as a Govt. Edition of Technical-theoretical Literature.

1. Russia--Physics
2. Russia--Electrical Engineering
3. Russia--Optics
- i. Practical Physics
- ii. Title

• **Recrystallization Texture of Duralumin.** G. S. Zhidakov and V. I. Lyegonin. (*Zhurnal eksperimental'noy i teoreticheskoy fiziki* [Journal of Experimental and Theoretical Physics], 1933, 3, (6), 579-587). — [In Russian, with a German summary.] The recrystallization texture of Duralumin annealed at 520° C. for ½ hr. and quenched after a reduction of 90-95% by cold rolling, has been determined. X-ray photographs show a well-defined texture differing from that of rolled Duralumin and from that of other metals with a face-centred cubic lattice. Polar diagrams for the planes (111), (200), (220), (113) show that the preferred orientation in the direction of rolling is {233}, {transverse thereto} {311} and normal thereto {011}. Other orientations observed (transverse thereto) {311} and normal thereto {011}, {121}, {120}, transverse thereto {211}, in the direction of rolling are {011}, {121}, {120}, transverse thereto {211}, {141}, {210}, and normal thereto {111}, {113}, {001}. — N. A.

1st and 2nd copies

PROCESSOR AND DECLASSIFIED

CH

Texture of rolled α -brass. V. I. Ivernova and G. S. Zhdanov. *Tech. Physics U. S. S. R.* 1: 64-70 (1954) (in German); *J. Tech. Phys. (U. S. S. R.)* 5, 911-21 (1934) (in Russian).—Measurements on copper and on 5 brasses show that the x-ray structure of brass is a function of Zn content, the stable configuration of brass starting at 10% Zn content. The Zn changes the orientations of the 111 and 100 axes but not of the 112 axis. Rolled pure gold and silver have similar textures but aluminum shows a slightly different texture. P. H. Rothermann

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ASB-56A DETAILORGRAPHIC LITERATURE CLASSIFICATION

GROUP 1

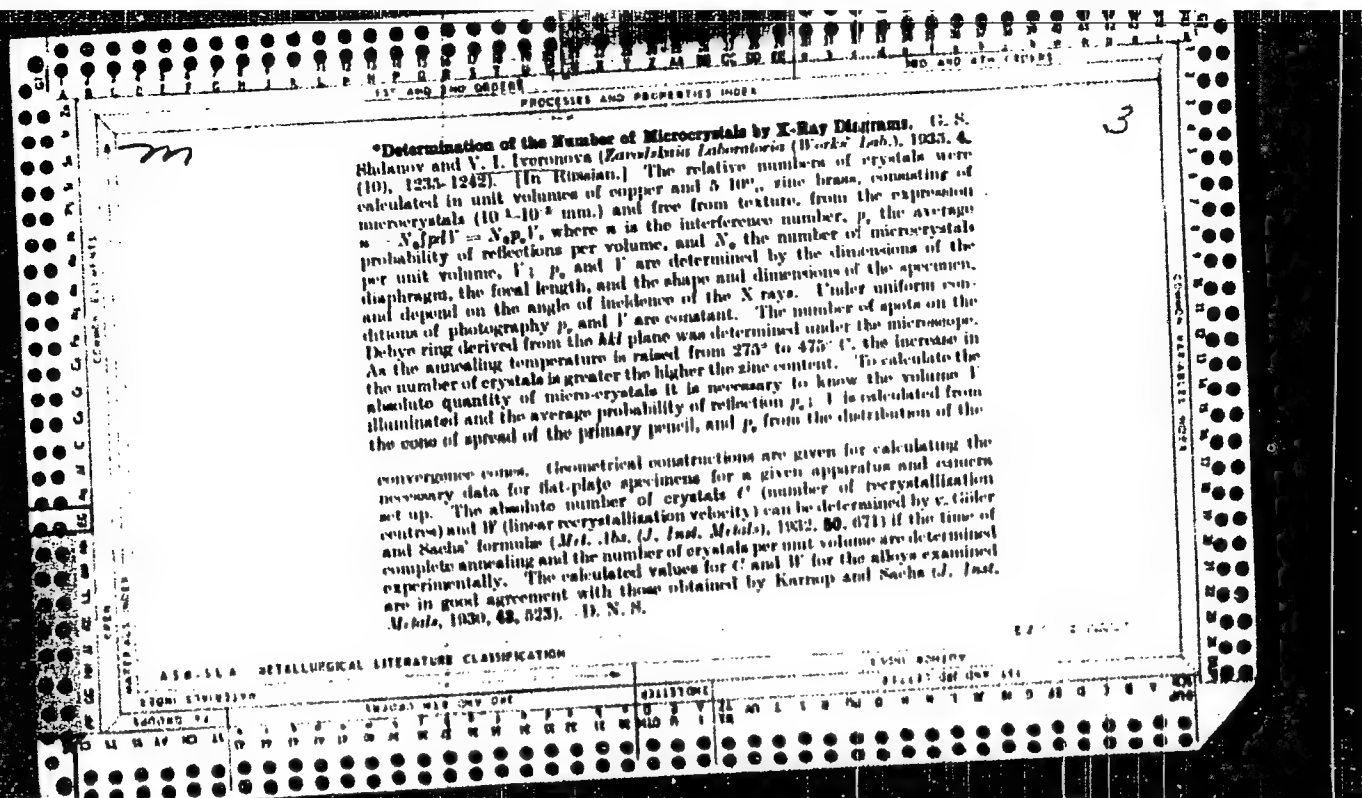
CLASSIFICATION

[illegible]

1ST AND 2ND ENDS		PROCESS AND PROPERTIES INDEX		1ST AND 2ND ENDS	
<p><i>m</i></p> <p>*The Texture of Rolled α-Brass. G. S. Zhdanov and V. I. Iveronov. (Zhurnal Tekhnicheskoy Fiziki (J. Tech. Physics), 1934, 4, 911-914). [In Russian.] The textures of copper and α-brasses with different zinc contents and the pole figures (111), (200), and (220) for the three degrees of intensity, indicate that the texture of the metal depends on the zinc content up to 10%, when the brass texture is established, and this changes only slightly with increase of zinc. Zinc produces a merging of the (111) and (100) textures of copper, but has no effect on the (112) texture as shown by the pole figures and by photographs taken with a special texture camera. The latter also indicates that the number of unoriented crystals increases with increase in the zinc content. The texture of α-brasses with a low zinc content is analogous to that of gold and silver.—N. A.</p>					
<p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
1ST GROUP		2ND GROUP		3RD GROUP	
1ST GROUP		2ND GROUP		3RD GROUP	

7

*Application of X-Ray Analysis to the Study of Season-Cracking in Brasses.
V. I. Iveronova (*Zetays Metall (Non-Ferrous Metals)*, 1935, (1), 107-112;
C. Abh., 1935, 59, 5399).—[In Russian.] Two examples were investigated;
the compositions of the samples were: (1) copper 62.51, lead 0.036, iron 0.06,
antimony 0.004, tin 0.02%, and phosphorus a trace; (2) copper
60, lead 0.1, iron 0.15, phosphorus 0.01, arsenic 0.01, antimony 0.03, bismuth
0.03, and tin 0.15%. Cracking was found to be due to seasonal changes of
temperature. To obviate cracking, brass (1) should be tempered at 350° C.
for 1 hr., and brass (2) at 400° C. for 40 minutes. Higher tempering tempera-
tures can also be used, and in that case the tempering period can be shortened.
—N. G.



5

An X-Ray Method of Investigating the Effect of Small Amounts of Aluminum and Vanadium on the Recrystallization of Iron and Steel. V. I. Ivernova. (Zavodskaya Laboratoriya, 1939, No. 2, pp. 187-193). (In Russian). The author studied iron alloys containing 0, 0.2, 0.40 and 4.30% of aluminum and two carbon steels deoxidized with small amounts of aluminum or vanadium after 10% and 30% deformation. In both cases the Debye method was used. He discusses at some length the theory underlying the X-ray methods and the results obtained. In general he finds that aluminum present in solid solution in the α -iron lattice considerably raises the temperature at which recrystallization sets in, but does not affect the temperature at which recrystallization is complete. In the form of alumina, on the other hand, the aluminum lowers the upper temperature somewhat without affecting the temperature at which recrystallization sets in. Vanadium sesquioxide in the same steel markedly raises the crystallization temperature. On the basis of Heller and Sachs' recrystallization theory and the X-ray and metallographic experimental results obtained, the author calculated the number of recrystallization nuclei formed per unit volume and the linear rate of growth of the recrystallizing grains. The number of nuclei is increased by the presence of aluminum or vanadium oxides, which, however, have only a slight effect on the rate of growth of the grains.

Effect of aluminum and vanadium on the recrystallization of iron and steel. V. I. Iurzonova. *Zashchita* 1:58, 187-193 (1939).—Iron and steel contg. addns. of Al and V were subjected to an x-ray examn. by the Debye method to det. the temp. of recrystn. in relation to the compn. and to the no. of recrystl. grains in a unit vol. as a function of the temp. Al which enters the soln. soln. in the lattice of α Fe raises strongly the starting temp. of recrystn. while leaving unchanged the end temp. of recrystn. V, on the other hand, sharply raises the temp. of recrystn. of the same steel. Presence of 5% Al raises recrystn. temp. by 100° while as little as 0.1% V raises the starting temp. by 100° and the end temp. by 75°. Addns. of oxides of Al and V increased the no. of recrystn. centers considerably while changing the rate of growth very little.

H. Z. Kamich

CA 3

Graphical method of identification of x-ray diagrams obtained by rotation method. V. I. Ivetnikova and M. M. Umantsev. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 10, 240-6 (1940).--The authors suggest a method for the identification of x-ray diagrams obtained by the rotation of crystals around arbitrary direction relative to the rectangular lattice. This method is based on the same principle as the method of Bernal (cf. *C. A.* 26, 4517) for the rotation around the crystal axes. Roksalana Gamrow

ASH 55A METALLURGICAL LITERATURE CLASSIFICATION

CLASSIFICATION		SUBJECT		AUTHOR		TITLE		SUMMARY		NOTES	
SECRET	CONFIDENTIAL	100-100000	100-100000	100-100000	100-100000	100-100000	100-100000	100-100000	100-100000	100-100000	100-100000
<p>Recrystallization of solid solutions of Sn and Al in Cu. V. I. Kuznetsov, E. Kuz'min and V. Milyutin. <i>J. Appl. Phys.</i> (U. S. S. R.) 18, No. 6, 215-21 (1948). Curves are given for the temp. of the beginning and ending of the cryst. of Sn-Cu and Al-Cu alloys as functions of the compn. and degrees of deformation of the alloys. In both cases the curves show two rather flat maxima as a function of the compn. These are at 1 and 10 atomic % Sn approximately for the Sn-Cu alloy. The Al-Cu alloy shows a max. at 4% a min. at 7-11% after which the curve again rises to more than 30 atomic % Sn. These maxima are more marked the greater the degree of deformation. The curve for the temp. of initial recryst. as a function of the compn. shows similar but more pronounced maxima. X-ray photographs were made and the change in width of the lines followed during the annealing process. In the case of the 10% Al alloy the width of the lines is greater than normal up to nearly complete recryst. The presence of the maxima on the recryst. curve for the finishing course, of the solid soln. and the change in the widths of the x-ray lines during the quenching process agree well with the theoretical conceptions advanced by S. T. Kosobedov (preceding abstract). P. H. Rathmann</p>											
<p>ASS. ELA METALLURGICAL LITERATURE CLASSIFICATION</p>											
<p>100-100000 100-100000 100-100000 100-100000 100-100000 100-100000 100-100000 100-100000 100-100000 100-100000 100-100000 100-100000</p>											

IVERONOVA, V. I. Dr. Physicomath Sci.

Dissertation: "Rest and Recrystallization of Metal Solid Solutions." Moscow Order of Lenin State U., imeni M. V. Lomonosov, 5 Mar 47.

SO: Vechernyaya Moskva, Mar, 1947 (Project #17836)

1. IVERONOVA, V. I.; YAKOVLEV, I. A.
2. USSR (600)
- h. Physics and Mathematics
7. Course in Physics, (Vol 1, Moscow-Leningrad, State Technical Press, 1947-1948) Reviewed by V. I. Iveronova and I. A. Yakovlev, Sov. Kniga, No. 11, 1949.

9. [REDACTED] U-3081, 16 Jan. 1953. Unclassified.

3

M

*Atomic Diffraction of X-Rays in Copper-Zinc Alloys.
A. V. Bonch-Bruyevich and V. I. Irmenova (Zhur. Tekhn. Fiziki, 1960, 30, (6), 685-690; Physics Abs., 1961, 34, 371).--[In Russian]. When a solid soln. is formed, the atoms of the various kinds are in statistical disorder in the lattice. Taking as atomic factor f_0 the mean value of the factors of the interchangeable elements, if $C\%$ of the atoms A are replaced by B atoms, the atomic factor is calculated thus: $100f_0 = f_{Aa}(100 - C) + C f_{Ab}$, where f_{Aa} and f_{Ab} are the individual atomic factors. Deviations from this rule are due to variation of the bond forces of atoms on formation of solid soln., i.e. mean values of thermal vibration amplitudes cannot remain the same as in pure metal; hence the alteration of the characteristic temp. of the alloy and of the temp. coeff. It might be expected to fall with increasing concentration of

solid soln. As it \propto propagation velocity of elastic waves in the crystal, it must fall with reduction of Young's modulus, which occurs in solid soln. (as compared with the pure metal). The reduction of characteristic temp. entails weakening of intensity of X-ray interference at larger angles θ . Another reason for variation in X-ray interference is the lattice distortions on formation of solid soln. These facts are actually observed, the suitability of the method for use with Cu-Zn alloys being based on the fact of the nearly equal absorption coeff. of the two metals for Cu radiation.

Apr. 1962

IVSHONOVA, V. I. ed.

Laboratory work in physics; a handbook Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1951.
614 p. (55-43185)

QC37.I9 1951

1. Physics - Laboratory manuals
I. Beliankin, A. G.

C A

3

Atomic dispersion of x-rays in solid solutions. V. I. Iveronova, Z. I. Kur'mina, S. I. Futergendler, and F. I. Detlaf (Moscow Univ.), *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 15, 44-52(1951).—Melts of Cu-Zn, KCl-KBr, and Ni-Cu of variable compn. were powd., annealed, and photographed with CuK radiation. Some tests were made at liquid-N temp. in a simple exptl. setup in which the pressure of evap. N pressed the cooling liquid into a sidearm congt. the sample. The functions of at. dispersion are indicated for the pure compds. and the mixt. and it is shown that these functions are not additive and that the functions of solid solns. decrease faster with the angle θ than those of the pure components. In Ni-Cu alloys this has been found to be due to statistical local displacements of atoms from equil. conditions, whereas in KCl-KBr the reason for the deviation is a lowering of the characteristic temp. θ due to a change of binding forces between atoms in the lattice.

S. Pakswier

PA 187188

IVERONOVA, V. I.

USSR/Physics - Rare Earths

Mar/Apr 51

*Investigation of the Structure of Some Compounds of Rare-Earth Elements," V. I. Iveronova, V. P. Tarasova, M. M. Umanetsky, Res Inst of Phys, Moscow State U

"Iz Ak Nauk SSSR, Ser Fiz", Vol XV, No 2, pp 164-168

Obtained size and shape of elementary cells of some compounds of the cerium group by X-ray analysis. Determined spatial groups and location of heavy atoms in some compounds and tabulated results. Authors were assisted by I. D. Borneman-Starinkovich, 1950.

Sub-24 Jun 1950
187188

LC

USSR/Physics - Rare Earths (Contd) Mar/Apr 51

S. S. Kvitka and A. A. Stepanova. Submitted at 3d All-Union Conference on Use of X-rays in Study of Materials held 19 - 24 Jun 50 in Leningrad.

LC

187188

IVERONOVA, V.I., ROYTBURD, TS.M.

Morphotropy

Morphotropy in crystalline structure of triphenyl compounds of elements of the 5th group. Zhur.fiz.khim., 16, No. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassified.

CA

*General & Physical
Chemistry - 2*

The morphotropy in the crystal structure of triphenyl compounds of the elements of the fifth group. V. I. Lomonosov and Ts. M. Rodbard (M. V. Lomonosov State University, Moscow). *Zhur. Fiz. Khim.* 26, 810-12 (1952) ... A. The unit cell of Ph₃N contains 10 mols.; $a = 15.0$, $b = 15.8$, $c = 22.1$ Å.; space group C_{2v}^2 or C_2 . Howell's interpretation (C. J. 43, 924) is incorrect. The cell of Ph₃P has 4 mols.; a , b , and c are 8.6, 14.0, and 11.5 Å.; space group $P2_1/c$ or Pc . There is no isomorphism between Ph₃N, Ph₃P, Ph₃As, Ph₃Sb, and Ph₃Bi. J. J. Bikerman

IVERONOVA, V.I., professor, redaktor; BELYANKIN, A.G.; CHETVERIKOVA, Ye.S.;
~~YAKOVLEV~~, I.A.

[Practical work in physics; manual] Fizicheskii praktikum; rukovodstvo k prakticheskim zaniatiyam po fizike. Izd.2., ispr. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1953. 634 p. (MLRA 7:3)
(Physics--Laboratory manuals)

IVERONOVA, V. I.; KALASHNIKOV, S. G.; YAKOVLEV, I. A.

Firsh, S. Ye.

Course in general physics. Vols. 1-3. E. S. Frish. A. V. Timoreva. Reviewed by
V. I. Iveronova, S. G. Kalashnikov, I. A. Yakovlev. Sov. kniga No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

Chemical Abst.
Vol. 48 No. 4
Feb. 25, 1954
General and Physical Chemistry

✓ A review of the state of the theory of dislocation in a crystalline lattice. V. I. Iveronova (M. V. Lomonosov State Univ., Moscow). *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz. 17, 280-88 (1953)*.—After a brief review of dislocation theory the concept of pos. and neg. dislocations is applied to recovery (gradual migration of dislocations) and recrystn. (change of the boundary by simultaneous movement of all dislocations). Exptl. data confirming dislocation theory are described. The crit. cleavage stress can be calcd. as a function of the distance between the planes contg. dislocations and their d ; for a stress of 6000 g./sq. mm., a distance of 10^{-5} cm. the d is 10^4 . Dislocation models of Taylor, Burgers, and Kochendorfer are discussed. An energy scheme of the hardening mechanism is given, and the growth of screw-type crystals from the vapor phase is treated from the standpoint of dislocation theory.

S. Pakswar

2
②
Phys

1/1/54

USSR/Solid State Physics - Phase Transformations in Solids, E-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34735

Author: Iveronova, V. I.

Institution: None

Title: Distortion in the Crystalline Lattice in Solid Solutions

Original Periodical: Tr. In-ta kristallogr. AN SSSR, 1954, No 10, 149-157

Abstract: See Referat Zhur - Khim, 1956, 53720

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- 1 -

10880

Chen

Distortion of crystal lattice in solid solutions. V. I. Iveronova. Trudy Inst. Metall. Akad. Nauk S.S.S.R. 1954, No. 10, 149-57; cf. C.A.B. 48, 17801. — Exptl. data on Ni-Cu, Cu-Zn, Cu-Al, Fe-Pt, Fe-Co, and KCl-KBr systems show that: Entry into solid soln. strongly increases crit. shear stress. Hardening following deformation is less for monocrystals, the greater is the initial rise of crit. shearing stress. For polycryst. solid solns. the resultant hardening is greater, the greater is the concn. of solid soln. Limit of increase of crit. shear stress takes place with increase of concn. of solid soln. Latent surface of slip is strengthened more than the actual one, and because of this, rupture occurs earlier and the stress must be increased more strongly to pass over to another system of slippage. Increase of hardness and crit. shear stress are not connected with increase in modulus of elasticity. In solid solns. there is always the appearance of static lattice shifts. In a no. of cases there is also a dynamic shift, whose magnitude can exceed the static shifts. When the root-mean-square shifts exceed the difference in at. radii, there is evidence of chem. reaction in solid solns.

V. N. Belozarski

RM

IVERONOVA, V. I.

"Deformation of Crystalline Lattices in Solid Solutions." by V. I. Iveronova.
pp. 339-347.

SO: Works of the Inst. of Crystallography, Issue #10, (Report submitted in
the 3rd International Congress of Crystallography; published by the
Acad Sci USSR, Moscow, 1954)

IVERONOVA, V. I.

USSR/ Engineering - Metallurgy

Card 1/1 Pub. 22 - 14/40

Authors : Iveronova, V. I., and Katsnel'son, A. A.

Title : Distortions of crystal lattices of cobalt and palladium in solid solutions of iron.

Periodical : Dok. AN SSSR 99/3, 391-394, Nov 21, 1954

Abstract : Experimental studies of the causes of distortions in crystal lattices of cobalt and palladium, dissolved in iron (solid solutions), are described. Experimentally obtained data were checked and compared with the theoretical values of calculated coefficients of distortions (dynamical and statical). Results of the studies are summarized and presented in tables. Seven references; 6-USSR and 1-Foreign (1935-1952). Graphs; tables.

Institution: Moscow State University M. V. Lomonosov

Presented by: Academician G. V. Kurdyumov, April 28, 1954.

Iveronova, V. I.

USSR/ Chemistry - Silk fibers

Card 1/1 Pub. 22 - 28/63

Authors : Andreyeva, N. S., and Iveronova, V. I.

Title : The structure of silk fibroin

Periodical : Dok. AN SSSR 99/6, 991-993, Dec 21, 1954

Abstract : Experiments were conducted with fibers of Bombyx mori silk fibroin treated in a buffer solution of $\text{NaHCO}_3 + \text{Na}_2\text{CO}_3$ at 9.9 pH to determine the structure of the fibroin. Photos were made of the non-monochromatized and monochromatized copper emission obtained during the reflection of X-rays from a curved aluminum monocrystal placed in an RKU-86 type camera. The results obtained are listed. Five references: 3-USA; 1-USSR and 1-German (1943-1954). Tables; illustrations.

Institution: The M. V. Lomonosov State University, Moscow

Presented by: Academician N. V. Byelov, May 11, 1954

FD-2835

USSR/Physics - Metals, Radiography

Card 1/1 Pub. 153-18/30

Author : Iveronova, V. I. and Katselson, A. A.

Title : ~~Problem of Mosaic of Crystals in Polycrystalline Metals~~
: Problem of Mosaic of Crystals in Polycrystalline Metals

Periodical : Zhur. Tekh. Fiz, 25, 696-699, 1955

Abstract : Starting with a certain annealing temperature of plasticity de-
formed polycrystalline solid solutions, an intense growing of
mosaic blocks occurs, leading to weakening of intensity of first
lines of the radiogram. A method facilitating the separation of
the extinction effect on variation of the ratio of line intensi-
ties allows determining the distortion of the crystalline lattice.
Six references, 3 foreign.

Institution :

Submitted : September 8, 1955

Structures of the nitrates of rare-earth elements. V. I.
Iecronova, V. P. Tugayev, A. K. Zolotarev, G. V. Zolotarev,
and Y. M. Sukhacheva (M. V. Lomonosov State
Univ., Moscow). *Zhur. Khim.* 39, 214-14 (1965); cf.
2, 4, 46, 1113. —The lattice parameters for $\text{La}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$, $\text{Ce}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$, and $\text{Sm}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ (where n is
an odd number) are given in Å units and a , b , and c
are given in Å units. a : 10.77, 10.63, 10.73; b : 78.9, 102.1, 102.5;
 c : 8.90, 10.81, 10.60, 78.8, 102.6, 91.8; β : 78, 9.20, 11.7, 109.
J. W. Loweberg, Jr.

IVERNOVA, V. I.

USSR/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 167

Author: Ivernova, V. I., and Katsnel'son, A. A.

Institution: Academy of Sciences USSR

Title: Distortions in the Crystal Lattice of Solid Solutions of Cobalt and Palladium in Iron

Original

Periodical: Dokl. AN SSSR, 1954, Vol 99, No 3, 391-394

Abstract: The distortions in the crystal lattices of Fe-Pd (4 at percent Pd) and Fe-Co (5, 10, 20, 30, 35, and 50 at percent Co) alloys have been studied. The existence of distortions and their nature were investigated by the weakening of the atomic scattering function (f-curve) of the alloys indicated by comparing it with the values for the pure metals at various temperatures. The f-curve was calculated from X-ray photographs obtained by the standard powder method with Fe-K α and Co-K α radiation. An increase was detected in the distortion in Fe-Co alloys when the Co concentration was increased up to 20%, after

Card 1/2

IVERONOVA, V. I.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub: 22 - 29/51

Authors : Andreyeva, N. S., and Iveronova, V. I.

Title : The structural characteristics of fibrillar albumina

Periodical : Dok. AN SSSR 101/1, 111-114, Mar 1, 1955

Abstract : The basic problems involved in the study of the structural characteristics of fibrillar albumina are analyzed. X-ray experimental data are presented showing that the fibers of certain fibrillar albumina have parallel oriented chain molecules the packing of which has a certain specific nature. The presence of various interference types indicates that fibrillar albumina represent systems consisting of several phases. Five references: 4 USSR and 1 USA (1936-1952). Illustrations.

Institution : The M. V. Lomonosov State University, Moscow

Presented by : Academician N. V. Byelov, September 21, 1954

IVERONOVA, V. I.

USSR/Chemistry - Physical chemistry

Card 1/2 Pub. 22 - 32/54

Authors : Semanchenko, V. K.; Kristan, E.; and Iveronova, V. I.

Title : Effect of admixtures on the surface tension and recrystallization of Sn

Periodical : Dok. AN SSSR 102/5, 973-975, Jun 11, 1955

Abstract : Experiments were conducted to determine the effect of admixtures (active & inactive) on the surface tension and recrystallization of Sn. It was found that surface active admixtures become adsorbed on the surface of Sn.

~~grain size is parallel in a majority of instances. The only exception was~~

Institution : The M. V. Lomonosov State University, Moscow

Presented by : Academician A. V. Shubnikov, January 26, 1955

"APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000619320003-7

Four USON references (1932-1953). Table.

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000619320003-7"

Iveronova

USSR/Laboratory Equipment - Instruments., Their Theory,
Construction and Application.

H.

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 19763

Author : Ya.I. Grayevskaya, V.I. Iveronova, V.P. Tarasova.

Title : Specialized Installation for Determination of Intensity
of X-ray Reflections with Geiger's Counters.

Orig Pub : Kristallografiya, 1956, 1, No 4, 442-445

Abstract : The installation is assembled on the base of a standard
x-ray apparatus URS-55, parts of the optical bench OSK-1,
conversion radio-schemes PS-64 with mechanical and Gei-
ger's counters RM-4. The intensities of diffraction
lines with reflection angles of 5 to 74° can be measured
with the installation. There is no stabilization of the
voltage and current. The intensity of the tube radiation
is checked with a separate counter.

Card 1/1

- 4 -

IVERONOVA, V.I., prof.; SHVIDKOVSKIY, Ye.G., prof. otv.red.

[Program in general physics; for the Physics Faculty] Programma po
obshchei fizike (dlia fizicheskogo fakul'teta). 1956. 7 p.
(MIRA 11:3)

1. Moskow.. Universitet.
(Physics--Study and teaching)

IVERONOVA, V.I., prof.; GOLUBKOV, P.V., prof., red.; KONDILANKO, I.I., dots.,
red.; GURTOVOY, M.Ye., dots., red.; MARIANASHVILI, M.M., dots. red.

[Program in general physics for physics and physicomathematics
faculties of state universities] Programma po boshchei fizike dlia
fizicheskikh i fiziko-matematicheskikh fakul'tetov gosudarstvennykh
universitetov. [Kiev] Izd-vo Kievskogo gos. univ. Pt.1. [Mechanics,
Molecular physics. Electricity and magnetism. Optics] Mekhanika.
Molekuliarnaia fizika. Elektrichestvo i magnetizm. Optika. 1956.
8 p. (MIRA 11:3)

1. Russia (1923- U.S.S.R.) Ministerstvo vysshego obrazovaniya.
(Physics--Study and teaching)

USSR / Solid State Physics - Structural Crystallography

E-4

Abs Jour : Ref Zhur - Fizika, No. 5, 1957 #11606.

Author : Graysvskaya, Ya. I., Iveronova, V.I., Tarasova, V.P.

Inst : Moscow University, USSR.

Title : Specialized Setup for the Determination of the Intensities
of X-ray Reflections with the Aid of Geiger Counters.

Orig Pub : Kristallografiya, 1956, 1, No.4, 442 - 445.

Abstract : Description of the operation of a simplified setup for the
measurement of the integral intensities of X-ray diffraction
reflections. The setup is assembled out of standard in-
struments: X-ray apparatus type URS-55, PS-64 electronic
counting circuit, Geiger counters and mechanical counters.
The high voltage and the plate currents are not stabilized.
To fix the intensities of the primary X-ray beam, a Geiger

Card: 1/2

IVERONOVA, V. I.

Moscow State University "The Distortion of Crystal Lattice in Solid Solutions"
(Section 11-2) A PAPER SUBMITTED AT THE General Assembly and International Congress of Crystallography, 10-19 Jul 57, Montreal, Canada.

C-3,800,189

Lucr. de cercetare
ANDREYEVA, N.S.; IVERONOVA, V.I.

Characteristics of the X-ray diffraction patterns of oriented high-molecular substances [with summary in English]. Biofizika 2 no.3: 281-293 '57. (MLBA 10:8)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni M.V.Lomonosova (for Andreyeva). 2. Institut biofiziki Akademii nauk SSSR, Moskva (for Iveronova)
(X RAYS) (DIFFRACTION) (MOLECULES)

70-3-15/20

AUTHOR: Iveronova, V.I., Zvyagin, A.P. and Katsnel'son, A.A.

TITLE: The distortion of the crystal lattice in solid solutions.
(Iskazheniya kristallicheskoy reshetki v tverdykh rastvorakh)

PERIODICAL: "Kristallografiya" (Crystallography), 1957,
Vol.2, No.3, pp. 414 - 418 (U.S.S.R.)

ABSTRACT: The values of the mean square static displacement of atoms were calculated by means of the elastic model of solid solution. A comparison of the results of calculations with the experimentally measured values of U_{st} are given. The values of U_{st} determined experimentally agree in order of magnitude with the calculated values; however, the theoretically required proportionality in the difference of atomic radii is not observed. An analysis of the probable causes of this divergence is given. The most essential must be the comparison of the values of the mean square displacements with the short-range order, determined according to the intensity of the background of the X-ray pattern.

card 1/2 The dependence of the value of the mean square static displacements was studied in Cu-Sn, Fe-Co, Ni-Cr, Ni-Ti and Fe-C alloys. For low concentrations all the curves show a

70-3-15/20

The distortion of the crystal lattice in solid solution.
(Cont.)

linear dependence of α on concentration, which agrees with the calculations carried out on the ground of the elastic model. A saturation of the value of the mean square static displacements is observed at high concentrations; for Ni-Fe alloys the outline $\alpha = f(c)$ was obtained, which does not coincide with the theory. It was shown that in this case the values of U_{st}^2 , determined from X-ray patterns, with Mo and Cu radiation do not show mutual agreement. The picture observed is explained by the influence of primary extinction.

A curve of the dependence of the Debye temperature upon concentrations was deduced for Ni-Fe alloys. Using Cu, Au and Ni₃Fe alloys, the dependence of the Debye temperature upon the long-range order was shown. The Debye temperature of the ordered solid solution was found to be lower than that of the disordered one. There are 4 figures and 18 references, 13 of which are Slavic.

ASSOCIATION: Moscow State University im. M.V. Lomonosov.
(Moskovskiy Gosudarstvennyy Universitet im.
M.V. Lomonosova)

SUBMITTED: March 8, 1957.

AVAILABLE: Library of Congress

Card 2/2

IVERONOVA, V.I.

AUTHOR: Zvyagina A.P. and Iveronova, V.I.

70-5-7/31

TITLE: A Method of Determining the Amplitudes of the Thermal Vibrations of Atoms of Various Kinds in a Solid Solution
(Metod opredeleniya amplitud teplovykh kolebaniy atomov raznogo sorta v tverdom rastvore)

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ABSTRACT: An X-ray method for calculating the temperature factors B_1 and B_2 (mean square displacements) for each of two kinds of atoms has been developed and applied to an ordered solid solution, Cu_3Au , and a 1.9% solution of W in Fe. The r.m.s. amplitudes were found to be 0.18 and 0.12 Å for Cu and Au, respectively at 240°K and 0.11 and 0.05 Å for Fe and W, respectively, at 425°K. If $n = \sin^2 \theta / \lambda^2$ the atomic scattering factor for a solid solution can be expressed as:

$$f = (1 - c)f_1 \exp(-B_1 n) + cf_2 \exp(-B_2 n).$$

c is the concentration of the second component. Any pair of experimentally measured intensities $I(n)$ can be solved for B_1 and B_2 if the structure factors are calculable. The

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equations can be expressed in terms of one variable B_1 :

$$f'' = (1-c)f_1'' \exp(-B_1 n'') + cf_2'' \left[\{f_1' - (1-c)f_1'' \exp(-B_1 n')\} / cf_2' \right]^{n''/n}$$

This expression is plotted out for Cu_3Au for different pairs of n' and n'' . The Cu_3Au was only partly ordered so that the static distortion ($\alpha_{\text{st.}} = 0.66$) was eliminated by taking photographs at two different temperatures which gave $B = 0.60$. Introducing the parameter α , correction can be made for the different types of bonds to the solute atoms. The dependence of α on B_x , (r.m.s. amplitude of the solute atom) can be found by constructing the family of curves of f against B_x for different values of α . The observed dependence of f on $\sin\theta/\lambda$ enables the curve $\alpha(B_x)$ to be found.

There are 2 figures, 3 tables and 3 non-Slavic references.

ASSOCIATION: Moscow State University im. M. V. Lomonosov (Moskov-
Card 2/3 skiy Gosudarstvennyy Universitet im. M. V. Lomonosova)

BELOV, N.V.; BELYAYEV, L.M.; BOKIY, G.B.; BRONNIKOVA, Ye.G.; VAYNSHTEYN,
B.K.; ZHDANOV, G.S.; IVERONOVA, V.I. ~~XITAYGORODSKIY~~, A.I.;
PINSKER, Z.G.

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